



Technical Exchange: OMG Process

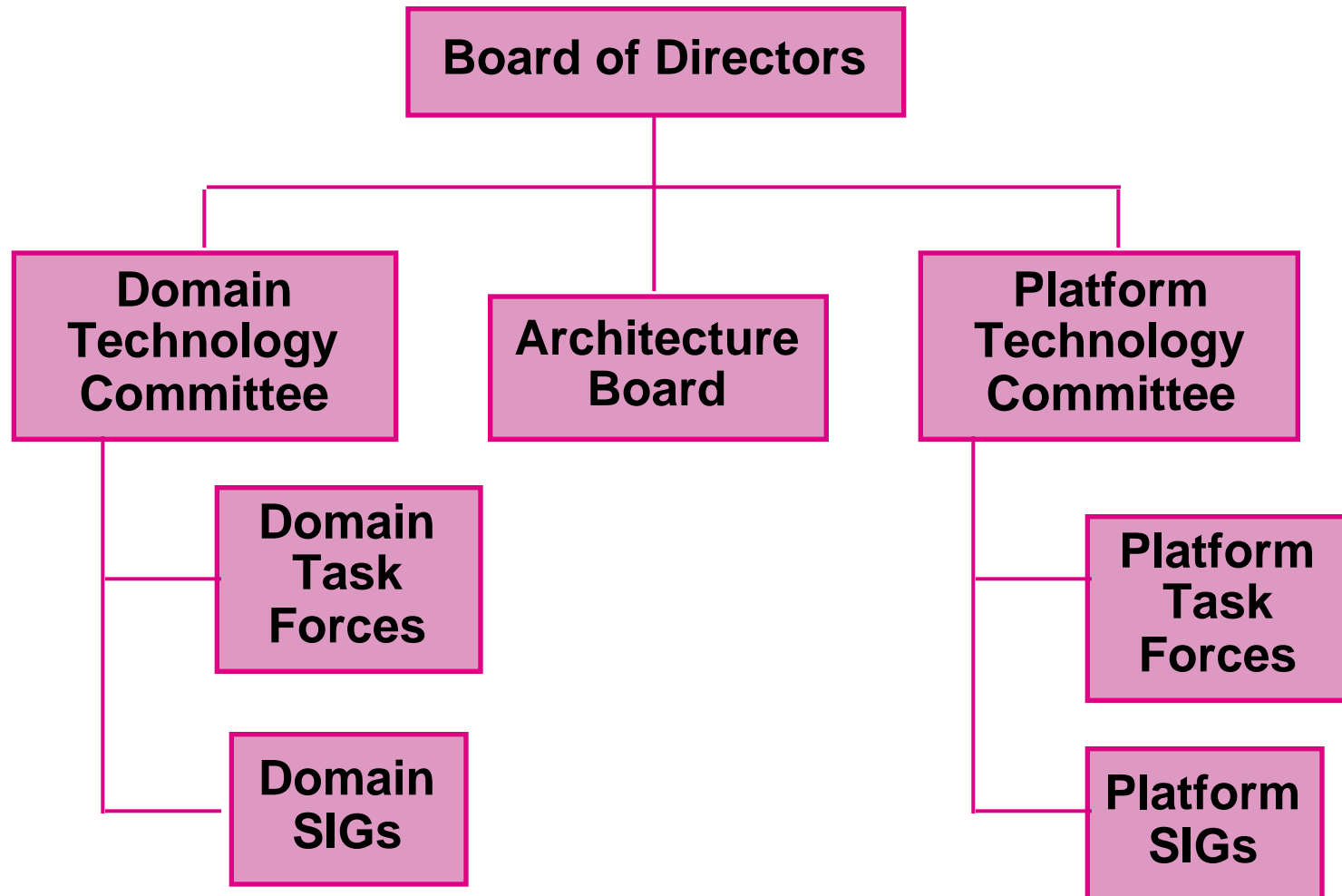
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Object Management Group (OMG): An Industry Consortium

- **“OMG's mission is to promote the theory and practice of object technology for the development of distributed computing systems.”**
- **“The goal is to provide a common architectural framework for object-oriented applications based on widely available interface specifications.”**
- **OMG's work is done by over 750 members across North America, Europe, and the Pacific Rim.**
 - **Members propose, write, and adopt specifications.**
 - **OMG staff is small.**
- **All the major software vendors are active members: IBM, Microsoft, Sun, Oracle, Groupe Bull, ICL, Hitachi, Fujitsu, ...**
- **Government members include NSA, DISA, DMSO, National Defence of Canada, Eurocontrol, ...**

OMG Committees Reflect Platform and Domain Interests



OMG Members Are Organizations

- **An organization joins OMG by paying a fee that depends on the organization's size and the level of membership it desires.**
- **Contributing members can**
 - **Propose platform or domain technology**
 - **Vote in all committees**
- **Domain Contributing members can**
 - **Propose domain technology**
 - **Vote in all committees on the domain side**
- **Influencing, Government and University members can vote in task forces and SIGs.**
- **DMSO is a Contributing member.**
- **Each member has a registered voting representative.**
- **Guests may be invited to attend OMG meetings.**

Work Occurs At and Between Technical Committee Meetings

- **Technical Committees meet six times a year.**
 - **Four meetings are held in North America.**
 - **Two meetings are held in Europe or the Pacific Rim.**
 - **The Architecture Board, Task Forces and SIGs meet in the same location and week as the Technical Committees.**
- **OMG meetings last a week at a time.**
- **Standards submission requires serious work.**
 - **Often involves other side meetings.**
 - **Requires substantial effort from the representatives involved.**
- **OMG supports the process with**
 - **Document archives**
 - **Mailing lists**
 - **Web pages**

OMG Standards Reflect Certain Principles

- **Standards encourage the adoption of technology by users.**
 - **OMG members' interests dictate what gets worked on.**
- **Standards should reflect the best technology practically attainable.**
 - **Practicality reflects users' needs, time to market, and compromises among vendors.**
 - **Architecture Board ensures coherence and consistency.**
- **Standards should arise from experience.**
 - **OMG standards typically arise because customers have been asking for a technology.**
- **A standard is useless unless commercial implementations are available.**
 - **OMG insists submitters commit to commercial availability soon after adoption.**
 - **Standards can be withdrawn if no implementation appears.**

OMG Standards Describe Interfaces and Behavior of Software

- **A typical OMG standard contains:**
 - **A description of the setting in which the technology is to operate**
 - **The interfaces to a set of objects that provide the functionality, expressed in OMG Interface Definition Language**
 - **A description (not formal) of behavior**
 - **Typically no performance information is specified.**
 - **Examples of the intended use of the technology**
 - **The relation of this standard to other OMG standards**
- **A standard intentionally leaves room for a variety of implementations. The variation in performance characteristics and additional features is the vendors' opportunity to distinguish themselves.**

Standards Are Adopted By One of Two Routes

- **Usual route to adoption involves a Request for Proposal (RFP).**
- **Another route, used to lessen the work required for uncontroversial standards, involves a Request for Comments (RFC).**
- **In either case, some Domain or Platform Task Force (TF) is the originating OMG body.**
- **The Architecture Board is always asked to review and comment on a proposed standard.**
- **The Platform or Domain Technical Committee votes to recommend adoption.**

The Usual Route

- **Members with an interest propose a Request for Information (RFI) to a Task Force.**
- **Task Force issues the RFI.**
- **OMG members and non-members may reply with their ideas about needed technology.**
- **Task Force recommends issuance of one or more Requests for Proposal.**
 - **RFP states requirements to be met by any proposed technology.**
 - **Architecture Board approves the RFP.**
 - **Technical Committee issues RFP.**
- **OMG members submit technology responses to RFP.**
 - **Submitters sign Letters of Intent to make implementations of adopted technology available commercially within a year of adoption.**

The Usual Route, Concluded

- **RFPs typically draw multiple, conflicting responses.**
- **Submitters are encouraged to revise and merge their submissions.**
- **Task Force votes to recommend adoption of no more than one (hopefully merged) submission.**
- **Architecture Board reviews the submission.**
- **Technical Committee recommends adoption.**
 - **Requires 2/3 vote of members who have earlier joined the voting list for a particular vote.**
- **Board of Directors adopts the specification.**
- **The entire process usually takes 12 to 24 months.**

Request for Comments (RFC)

- **RFC is used to lessen the work and (perhaps) shorten the time needed to adopt uncontroversial standards.**
 - **RFC was used to adopt the Ada-95 binding for CORBA.**
- **Process begins with an unsolicited proposal of technology from a member, accompanied by a Letter of Intent.**
- **An appropriate Task Force recommends issuance of an RFC.**
- **Architecture Board reviews the proposal.**
- **The appropriate Technical Committee issues the proposal as RFC.**
- **Industry (not just OMG members) have 90 days to comment.**
- **OMG staff evaluates comments; any “significant negative comment” halts the process.**

Request for Comments, Concluded

- **Technical Committee recommends adoption of the proposal.**
- **The Board of Directors adopts.**

OMG Chartered Special Interest Group

- **Special Interest Group (SIG) for Distributed Simulation was chartered by OMG in January 1997.**
 - Its mission is to explore means of facilitating distributed simulation through OMG bodies and technology.
 - The SIG was chartered at the OMG meeting in January 1997.
 - The charter reflects recognition by OMG membership of significant interest in distributed simulation.
 - Formation of the SIG resulted directly from DMSO-sponsored activity.
- **The Simulation SIG is chartered under the Domain Technical Committee.**
 - Simulation technology has more to do with the domains of application than with CORBA, so it belongs on the domain side.
 - Simulation is peculiar in that it cuts across many actual domains of application.
 - The SIG's platform concerns are pursued through participation in the platform bodies.

Work to Date Is Chiefly Publicity and Advocacy

- **SIG publicizes the benefit of standards for distributed simulation.**
 - **SIG promotes standards to industrial users of simulation and to software vendors.**
 - **SIG is a vehicle for publicizing HLA to a wider industry audience.**
- **SIG advocates adoption and implementation of OMG object services that facilitate distributed simulation.**
 - **The basic CORBA pattern of communication (remote procedure call) is only one of several required for efficient distributed simulation.**
 - **The SIG has participated actively in shaping RFPs for several object services related to simulation.**
 - **Real-time extensions to the Time service**
 - **Messaging service**
 - **Notification service**
 - **By inviting a series of ORB vendors to address the SIG, the SIG conveys its needs to them.**

Simulation SIG Participants Are Diverse

- **Government contractors, drawn by involvement with HLA**
- **Simulation infrastructure vendors**
 - **ObjecTime, Ltd.**
 - **Original Sim**
- **Industrial users of simulation and allied technology**
 - **Hitachi**
 - **Fraunhofer Society**
 - **3M**

OMG Platform Standards Are in Widespread Commercial Use

- **Common Object Request Broker Architecture (CORBA) is the basic plumbing.**
 - It enables fundamental distributed object programming.
 - Mature CORBA implementations are available from many vendors.
 - Partial implementations are available in the public domain.
 - Interoperation between vendors has been achieved in theory and largely in practice.
- **CORBA services provide functionality needed by most distributed object systems irrespective of domain.**
 - Name service is a distributed directory for object references.
 - Trader service is a means of locating services based on a descriptive query.
 - Transaction service allows definition of atomic sets of operations.

OMG Domain Standards Are Beginning to Emerge

- **The first domain technologies have just been adopted.**
 - **Telecoms**
 - **Object-Oriented Analysis and Design (Unified Modeling Language)**
- **The Domain Technical Committee and Task Forces are very active.**
 - **Manufacturing**
 - **Healthcare**
 - **Electronic commerce**
 - **Life sciences**
 - **Utilities**

For Further Information...

- **Object Management Group Web page:**
<http://www.omg.org>
- **Simulation SIG co-chairs:**
 - **Dr. Frederick Kuhl, MITRE, fkuhl@mitre.org**
 - **Dr. Gregory Mack, Booz-Allen Hamilton, gmack@bah.com**